MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2016/2017

ERT 3056 – INTRODUCTION TO CIM

(RE)

09 MARCH 2017
2.30 p.m. – 4.30 p.m.
(2 Hours)

INSTRUCTION TO STUDENTS

1. This Question paper consists of 4 pages including cover page with 4 Questions only.

2. Attempt all FOUR questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

Question 1

a) There are two types of 2D constraints in Autodesk Inventor namely 'Dimensional constraints' and 'Geometric constraints'. By means of a sketch, show **FIVE** types of geometric constraints that are available in the Autodesk Inventor sketch template. **[15 marks]**

b) Geometric transformation is a change in geometric characteristic such as position and size changes of geometric features. Explain what is transformation of reflection or mirror. By means of a sketch / sketches, show the reflections about the three axis. **[10 marks]**

Question 2

a) One of the most widely used rapid prototyping technology is the Stereolithography (SLA) technology. Briefly explain **FIVE** major problems associated with SLA machine in the current industries.

[10 marks]

b) State the deficiencies of Laminated Object manufacturing (LOM) encountered by the current industries. **[6 marks]**

c) List and explain **FIVE** key strengths of employing Fused Deposition Machine (FDM) as a Rapid Prototyping machine. **[9 marks]**

Continued...

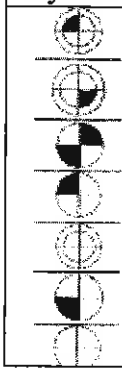
Question 3

a) In a typical Computer Numerical Control (CNC) manufacturing process, canned cycles are often used in part programming. In your own words, explain what is canned cycles and its advantage / advantages to the CNC manufacturing process. **[4 marks]**

b) Write a block program for a drilling operation (G81) using a canned cycle. *(Note: You may assume reasonable metric values for your coding)* **[6 marks]**

c) Axes selection is important to describe the axes motion for moving the CNC machines / tools. From **Table Q3c)**, state the description of the various axes selection based on the different types of symbols / labels shown. **[7 marks]**

Table Q3c)

Symbol	Label
	M W R E B A N

d) Chip conveyors are normally used during CNC machining process when material removal rate of the work piece is high. With the aid of a neat sketch, explain the working principle of 'chip conveyors' and describe their application. **[8 marks]**

Continued...

Question 4

a) Identify **SEVEN** goals to achieve 'Just-In-Time' in a typical manufacturing system. **[7 marks]**

b) State the **FIVE** key features of Product and Data Management (PDM).

[10 marks]

c) In the light of your knowledge on material handling process in a typical manufacturing industry, describe a physical layout of an automatic storage and retrieval system (AS/RS) linked with automated guided vehicle (AGV).

(Note: Your answer should be in a form of a neat sketch with detail labeling)

[8 marks]

End of Paper